DOCUMENT RESUME

ED 032 260 SP 003 037

Summary of Behavioral Science Elementary Teacher Education Program. Summary of the Final Report.
Michigan State Univ., East Lansing.
Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No-BR-8-9025
Pub Date Oct 68
Contract-OEC-0-8-089025-3314-010
Note-15p.
Available from-Elem. Teacher Educ. Project, Div. of Elem. & Sec. Research, Bureau of Research, USOE, 400 Maryland Avenue, S.W., Washington, D.C. 20202 (Free)
EDRS Price MF-$0.25 HC Not Available from EDRS.
Descriptors-Behavioral Sciences, *Elementary School Teachers, *Scientific Methodology, *Teacher Education, Teaching Experience

A model for the preparation of elementary school teachers based on the content and modes of inquiry of the behavioral sciences, on a clinical behavior style (a regularized diagnostic and regenerative approach), and on the teach-as-taught effect was developed by an interdisciplinary team at Michigan State University. The undergraduate program model, implemented through short, single-purpose content modules which could be grouped to form components, was composed of five major curricular areas: general liberal education, designed to relate general knowledge to the study of human behavior; scholarly modes of knowledge, designed to relate specific knowledge on human behavior to teaching; professional use of knowledge, designed to translate knowledge into action is simulated or live teaching experiences; human learning, designed to explore human capacity for learning, human environmental systems, and cognitive development; and clinical studies, designed to develop the clinical behavior style in teaching through a four-phase program beginning in the freshman year. Also, teacher specialization and continued professional study (along with joint college school responsibility for teacher education were included as additional curricular areas. Program evaluation, development, and management components were created and operated on a clinical basis. ED 027 285, ED 027 286, ED 027 287 comprise the complete report. [Not available in hard copy due to marginal legibility of original document] (SM)

ED032260

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SUMMARY OF THE FINAL REPORT

Project No. 8-9025
Contract No. OEC-0-8-089025-3314 (010)

SUMMARY OF

BEHAVIORAL SCIENCE ELEMENTARY

TEACHER EDUCATION PROGRAM

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MICHIGAN STATE UNIVERSITY

October 1968

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U.S. DEPARTMENT OF
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SP003037

SUMMARY *

I. Introduction

A changing society demands comprehensive changes in its educational system, and the young, rapidly growing discipline of the behavioral sciences provides systems of knowledge and inquiry which are relatable to the task of building a suitable teacher preparation program for elementary education. The Behavioral Science Elementary Teacher Education Program (BSTEP) is a comprehensive program based on the content and modes of inquiry of the behavorial sciences.

This program model emphasizes developmental clinical experiences which begin in a prospective teacher's freshman year and continue through a full year of internship. The five major areas of the program model are:

1. General-Liberal Education
2. Scholarly Modes of Knowledge
3. Professional Use of Knowledge
4. Human Learning
5. Clinical Studies

Undergraduate teacher preparation is emphasized, but in-service growth and preparation programs for auxiliary personnel, specialists and professional instructional leaders are also examined. Program evaluation and development and the various aspects of management are given detailed attention.

II. Development of the Model

The development of a program model such as that outlined above requires the resources of an extensive professional team. Theoretical constructs must be translated into working models and explicit instructional packages and patterns. More than 150 professional people contributed their time, effort, and expertise to the development of this model.

This proposal and its implementation is the product of an effort made by seven colleges in Michigan State University: The College of Arts and Letters, Communication Arts, Social Science, Natural Science, Home Economics, Education, and the University College.

Teams of educationists and scholars in the natural sciences, social sciences, and humanities worked closely together to integrate the program. While the product of their work is extremely important, the dialogue established between professional educationists and academic disciplinarians is even more significant. Interest far beyond that required by their formal commitments was exhibited by team members through their work.

*Pages A1 through A16 ("Abstract") of the final report.

III. Objectives

The teacher preparation model with its detailed educational specifications is designed to achieve three major objectives:

1. A new kind of elementary school teacher for the nation's schools--one who is a basically well-educated person who:

   a. Engages in teaching as clinical practice
   b. Is an effective student of human learning, its capacity and its environmental characteristics and
   c. Assumes a role as a responsible agent of social change.

2. A systematic introduction of research and clinical experience into the decision-making process as a basis for continued educational improvement.

3. A new kind of laboratory and clinical base upon which to found undergraduate and in-service teacher education programs.

IV. Rationale

The decision to center the professional foundations of the teacher preparation program model upon the behavorial sciences finds strong support in educational literature. In fact, as Ianni[1] points out, the focus of education on behavioral science is more renaissance than innovation. He writes:

> The bond between education and the study of human behavior was first created in classical Greece, the birthplace of the spirit of Western civilization and of the intellectual clan of modern life. For it was an unshakable classical belief that man was worthy and perfectible--perfectible because, unlike other animals, he could follow reason... In other words, education or study was regarded as the primary human activity, the source of all rational behavior in man...
>
> Today, looking to the past as well as to the future, we are proposing to seek perfection in all men everywhere, and education is once more the primary means to this end...The problem of education is the problem of culture and the problem of culture can be approached only through the study of man--a study we have described as the behavioral sciences.

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[1] Francis Ianni, Culture, Systems, and Behavior: The Behavioral Science and Education, (Chicago: Science Research Associates, Inc., 1967), p. 1618

Kahn and Weiner[2] add:

> The crucial issue facing man today is the question of how to plan the future so that man--the human spirit--will be master rather than slave...It is clearly desirable to have some concept of the alternative futures toward which policies may tend before the policies are formulated. Otherwise, points of no return may be passed without any conscious awareness that the panoply of choices is so great and the future so uncertain.

This program model uses the term behavioral science to mean those inquiries--their methods and their findings--which constitute reliable and valid sources of enlightenment about the human, his nature and his condition. Accepting "science" to mean the orderly inquiry and correlative amassing (organizing) of tested knowledge about the natural universe, its structures and its organisms, behavioral science delimits the meaning to man as a behaving creature, particularly emphasizing the interaction of man and environment, man and man--individually and in groups, in terms of intellectual and physical elements.

Another concept of particular importance to the professional teacher envisioned in this preparation program is clinical behavior style. A step in the direction of professionalizing education is the regularizing of the behavior of practitioners. A sturdy basis for this step already exists in the practice of learning from experience--a practice generally approved by both teacher and layman. The variable nature of problems with which a professional practitioner deals requires procedures which can be employed systematically to assure that:

1. He is taking account of the important elements in each new problem.

2. He is using relevant previous knowledge to develop his understanding of the problem.

3. He is selecting and adapting the plan for treatment or intervention which has the highest probability of success.

4. He will be able to evaluate the consequences of treatment.

5. He will feed into his own experimental learning that which can be learned from the evaluation.

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[2] Herman Kahn and Anthony J. Weiner, The Year 2000: A Framework for Speculation on the Next Thirty-Three Years, (New York: MacMillan Co., 1967), p. 357

Such a schedule of routine procedures is a professional behavior style, specified in this teacher preparation program model as a clinical behavior style.

The term, clinical behavior style, denotes the particular and stylized set of behaviors and mental processes of a practitioner who has been specifically trained to utilize his client-related experience as a continuing learning experience through which to improve his skills and increase his knowledge. The clinical behavior style appropriate for a professional teacher consists of six phases: describing, analyzing, hypothesizing, prescribing, treating, and observing consequences. The last activity, observing consequences of the treatment administered, in turn leads to the first, describing the changed situation, to begin a recycling of feedback.

This teacher preparation program model illustrates through its own format what is meant by the phrase, clinical behavior style of teaching. The rationale, for example, represents the phase of proposing of hypothesizing. One of the opinions or beliefs which led to the program in its present form is that a prospective elementary school teacher should be taught how to teach, not how to conduct research, but that in his preparation to teach he should be guided in developing his ability to understand reports of research and to translate the reported findings into his teaching practices. It is believed that more educational practices will be based on articulated defensible knowledge if efforts to bridge the communications gap between researchers and practitioners are made from both sides of the gap.

Another belief which influenced the development of this program model is that a trainee, since teachers tend to teach as they have been taught, be exposed to the kind of professional teaching behavior he is expected to attain. The teacher preparation program must itself be a model of creative teaching, continual critical self-evaluation, disciplined inquiry and exploration, rational innovation, and professional cooperation among various disciplines and specialities.

V. The Undergraduate Teacher Preparation Program Model

A teacher preparation program, built upon the principles and techniques of behavioral science, demands an interdisciplinary approach. Each branch of knowledge contributes its own unique content and modes of inquiry to the total program, and as a result the student experiences the comprehensive character of organized knowledge as it relates to human behavior.

The five major curricular areas are General-Liberal Education, Scholarly Modes of Knowledge, Professional Use of Knowledge, Human Learning, and Clinical Experiences.

Explicit content and instructional recommendations for implementing these areas are presented as short, single-purpose experiences modules. Each module is directed toward the accomplishment of a particular behavioral objective, is reported and filed in a uniform manner, and can be used for individualized instruction. These modules are grouped into clusters which, for the purposes of administration and communication to the academic community, are described as "components" with quarter-term credit weightings.

This modular approach implements the particular values expressed through this project:

1. The value of specifying behavioral objectives

2. The value of precise description of instructional experiences

3. The value of multiple-path programming to provide for the specific needs of different trainees

4. The value of providing for curricular change through continuous testable small-scale alternations rather than sporadic general upheaval.

More than 2,700 modules were written and included in the program. An illustrative module is found on the next page of this abstract with brief descriptions of some parts. These modules have been stored in a specially designed information retrieval system, and can readily be retrieved in their most current form. Through transfer of data cards or computer tapes, a college or university can obtain their own copy of the program.

General-Liberal Education

A broad, basic core of general-liberal education designed to foster individual fulfillment and to prepare citizens for participation in a democratic society is necessary in teacher preparation. Students learn to understand the role language plays in a society, to comprehend the physical and biological aspects of the world, to understand differing cultures, to become more sensitive to their own role in modern societies, to grasp relationships as expressed in mathematics, and to conceptualize man's potentialities. All these objectives serve the purpose of a broader objective: to relate the teacher-trainee's knowledge to the study of human behavior.

General-Liberal Education is divided into three components: Humanities, social science, and natural science. Humanities involves the student in questions of value such as: "What is man?", "What is the good, the true, and the beautiful?", and "What should man live for?" The student begins

Line number (digits 6-8)

Unique module number (digits 1-5)

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*OBJECTIVES    LEARNER DIAGNOSIS FUNCTIONAL READING OF ONE PUPIL AND      00669016
               TEACHES ONE FUNCTIONAL READING SKILL BASED ON DIAGNOSIS,   00669017
*PREREQJISITE  SUCCESSFUL COMPLETION OF PREVIOUS MODULES IN SECTION VIII  00669018
               AND OF SECTIONS I-VI.                                      00669019
*EXPERIENCE    WORKING IN A TUTORIAL SETTING LEARNER DIAGNOSIS            00669011
               FUNCTIONAL READING SKILLS OF ONE PUPIL AND USES THAT       00669012
               DIAGNOSIS TO TEACH THE CHILD ONE FUNCTIONAL READING        00669013
               SKILL, LESSON IS VIDEO-TAPED AND LEARNER EVALUATES HIS     00669014
               WORK WITH HELP OF INSTRUCTOR,                              00669015
*SETTING       OTHER (SPECIFY) TUTORIAL, COLLEGE                          00669010
*MATERIALS     VIDEO-TAPING EQUIPMENT,                                    00669005
*LEVEL         GRADES 3-4  GRADES 5-8                                     00669008
*GENERAL       ALL CANDIDATES                                             00669007
*HOURS         2                                                          00669006
*EVALUATION    LEARNER CORRECTLY DIAGNOSIS FUNCTIONAL READING SKILLS OF   00669020
               ONE PUPIL AND APPLIES APPROPRIATE TECHNIQUES AND           00669021
               MATERIALS IN TEACHING THE PUPIL ONE FUNCTIONAL READING     00669022
               SKILL.                                                     00669023
*FILE          FUNCTIONAL READING  INSTRUCTIONAL PRACTICE  CLINICAL       00669009
```

Level -- For pre-school teachers; grades 1-4; grades 5-8; all candidates

General -- General Classroom Teacher, Subject Specialist or both

Hours -- Approximate time for student to complete experience

File -- Index terms under which this module filed

his study of humanities with a workshop laboratory experience in the disciplines of literature, art, and music. In a subsequent series of experiences, he explores the basic issues of western man, classics of the west, and the American Quest. Exposure to the thoughts, institutions, and arts of the non-western world expand the student's view by sensitizing him to cultural biases.

The social science component introduces the students to the nature of the social science disciplines including geography, anthropology, sociology, political science, and economics. These fields are represented as systems. Geography, for example, is represented as a fundamental ecological system, anthropology as a cultural system, sociology as a social system. Through a carefully structured sequence of experiences, the decision-making model of social scientists are explored. The student becomes aware of the interaction among social forces and their impact on education.

The natural science component includes mathematics with its development of logic and mathematical proof. The first two modular clusters in this series draw heavily on a historical view of man's concept of the universe and of his theories concerning his own role. The final cluster presents an overview of mathematics, emphasizing the unique contribution of patterns and relationships between science and man.

A "Modes of Inquiry" seminar completes the General-Liberal Education pattern. This seminar deals, in a flexible and creative way, with the need of students to see the common aspects of all scholarly endeavors.

Scholarly Modes of Knowledge

Scholarly Modes of Knowledge differs from General-Liberal Education in two essential ways: the content included in Scholarly Modes of Knowledge is more directly applicable to teaching in the elementary school, and the modes or styles of inquiry of scholars are stressed. The component parts of the study of Scholarly Modes of Knowledge are linguistics, communication, literature for children, fine arts, social science, natural science, and mathematics.

The basic goals of the linguistics component are to explore the nature of language as it has been determined by linguistic research; to distinguish facts from emotionally-based or culturally-determined views about language; and to investigate those results of contemporary research on the grammar of English which are directly relevant to the student's future role as an elementary school teacher.

Emphasis is placed in the communication component on verbal and non-verbal communication patterns. Simulated experience with cross-cultural contacts aids the student to better understand himself and his feelings toward others; and as he increases his understanding of self and others, he is expected to analyze his encoding and decoding of messages and his choice of channels.

The study of literature for children combines the literary arts and the graphic arts. The characteristics of the genres of literature and the media and styles of art used by artists to illustrate children's books are studies, as well as the techniques and materials that the teacher can use to create an environment in which children enjoy and appreciate excellent literature.

The fine arts are considered in three aspects: art, music, and dance and drama. Emphasis is on the respective mode of perception and creativity of each area: visual, aural, and motor. Teaching art values, concepts, and productive behavior in children forms one basic concern in the program. The aural mode of perception is encouraged through music, while dance and drama provide an opportunity to respond aesthetically through the use of the whole person. The bodily form of expression and communication in dance and drama provide the future teacher with experience in objectifying in motion inner feelings and thoughts.

The Social Science component is devoted to social science theory and research. It emphasizes the interaction that takes place between personality and basic social systems. How, for example, does an individual affect the society of which he is a part? What role does society play in the life of the individual? The nature of conflict involved in these interactions and the decision-making process is a pervading theme of the section.

Science experiences are designed to develop the prospective elementary teacher's competency in the use of ideas and materials appropriate to elementary school science. Examples are taken from geological, biological, and physical sciences.

Providing a basic background for teaching elementary school mathematics directs the choice of content and method of approach for this component. The foundations of arithmetic, algebra, and geometry form the basic core of the program. Experiences in Scholarly Modes of Knowledge are interrelated with those in Professional Use of Knowledge and Clinical components. Thus, as the student learns mathematical content through lectures or directed independent study, he can practice the concept immediately in a mathematics laboratory, consider the implications for professional use, and employ his knowledge in a field setting.

Professional Use of Knowledge

This area provides an opportunity for the student to learn how to translate knowledge into educational action in classrooms and communities. Building upon General-Liberal Education and the study of Human Learning and integrating with the work done in Scholarly Modes of Knowledge, this area Professional Use of Knowledge, focuses upon the study of instructional

strategies used in the elementary school. Simulated and live contact with elementary-school-age children is planned. The component areas are reading, language arts, social studies, science, and mathematics.

Reading is organized to develop competencies in the teaching of basic developmental skills, readiness and beginning reading, recreational reading, and reading in the content areas. The experiences are designed to develop knowledge, comprehension, application, and analysis of reading methodology.

The Language Arts component focuses on the skills involved in listening, speaking, writing, and the supportive tool skills of spelling and handwriting. The strategy for study in these skills includes an examination of the objectives, instructional procedures, and evaluation techniques for each of the language arts through analysis of several programs in elementary schools.

Responsible, informed decision-making is the dominant theme pervading the entire social studies area. This theme is articulated in the Professional Use of Knowledge in two ways: by sensitizing undergraduate students to the range of decisions they are likely to encounter as teachers of the social studies, and by giving them actual experiences in making these decisions. A wide variety of instructional settings provide the foci for teaching decision-making to prospective social studies teachers. These include actual and simulated experience in elementary classrooms, micro-teaching, self-study projects, and many different kinds of laboratory and field experiences.

In auto-tutorial, small and large group approach, students are involved in a multi-dimensional approach to elementary science philosophy, curricula, methods, skills, materials selection, media utilization and evaluation techniques. The professional appraisal of role in establishing procedures of scientific inquiry, attitudinal change and experimental design necessarily reflect societal as well as technological issues and problems.

In mathematics, the student has an opportunity to translate the mathematics learned in Scholarly Modes of Knowledge into instructional strategies for children. He becomes aware of the instructional dimensions to be considered in planning for related clinical activities.

Human Learning

Specific study in the curricular area, Human Learning, occurs twice in the undergraduate program. Exploring human capacity for learning, understanding environmental systems, and inquiring into cognitive development are the three basic behavioral areas which planned educational experience must bring into interaction. The first contact with systematic

study of human learning occurs early in the prospective teacher's undergraduate program; the second occurs during the senior year, concurrent with internship. At this time the student studies the environmental systems which influence the growth of the human being and with which the educational process must be concerned. With increasing urbanization in American Society and a changing cultural orientation, tools of inquiry in analyzing societal forces and experience in using the tools of inquiry in actual situations are important assets to teachers. As one experience toward mastering the use of the methods, concepts, and principles of environment investigation, students make an analytical study of their teaching community during internship.

Clinical Experiences

To develop and expand a prospective teacher's facility in employing the clinical behavior style in teaching, progressive intensity of a pre-professional contact with children and schools is built into the preparatory program. Clinical procedures are analyzed and practiced through both simulated and actual situations. Four phases of clinical experiences are described:

1. tutorial
2. career-decision seminar
3. analytical study of teaching
4. team teaching, and internship

During internship trainees are assigned full-time to an elementary school classroom for an academic year. They assume autonomy and responsibility for classroom activities under the guidance of an intern consultant, and they receive significant assistance from university and school district resources. A unique cooperative school district-university fiscal arrangement for internship staff provides for five interns to be assigned to five elementary teaching stations under the direction of an intern consultant. The combined salaries of these six people is equated with that of five beginning teachers, thus insuring supervision as a built-in part of the program.

Teacher Specialization

Program differentiation and specialization for the teacher-trainee occurs along two dimensions:

1. The amount and area of subject-matter specialization
2. The age of pupils to be taught

The development of the middle school and team teaching are two organizational approaches which require teachers with strong subject-matter competency. Further, experimental curriculum movements in mathematics, science, social science, and language demand increased expertise on the part of the teacher. As a result the role of subject-matter specialists is emerging in the elementary school.

Differences in the ages of children also require differences in the backgrounds of teachers. Professional translation of human study is focused upon the unique needs of each group of children. Program branching, therefore, is provided those students planning to teach preschool, primary school, and middle-school children.

Continued Professional Study

The completion of pre-service teacher education requirements is only the beginning of a professional teacher's development. Joint responsibility by schools and universities for the in-service education of all professional and auxillary personnel is a necessity today.

This program model is predicated upon joint responsiblity by several educational agencies for the continuing education of teaching staff. A Clinic-School Network is established to promote continual feedback and development of the program. A college or university works with one or more school systems. Larger programs incorporating several clinic-school centers could function as a network.

Elementary schools become the clinic setting for pre-service teacher development. They furnish the basis for materials upon which the undergraduate program is built, and they become the testing ground for teacher education theories. Prospective teachers observe pupils there and analyze teacher-behavior patterns. Interns teach there. University staff work there in developing appropriate materials for undergraduate instruction.

In a similar manner the university and the elementary school cooperates to promote the continuing education of practicing teachers. Through joint school district-university arrangements, seminars are developed. University scholars become sources of assistance in specific school studies concerned with improving instruction. Human and material resources from both the local school system and the teacher education institution assist beginning teachers. Building upon intern experiences, skill in utilizing inquiry modes is further extended through a variety of learning situations.

Advanced study in the behavioral sciences for practicing teachers is directed toward a more sophisticated understanding of the variety of environments within which children develop, and the creation and utilization of the diagnostic, prescriptive, and evaluative tools for working with them in the school-community situation.

A small proportion of post-MA teachers with highly developed clinical stances, leadership ability, and demonstrated success in teaching may be selected for extensive training in professional leadership. Such personnel would become catalyzers for further development and refinement

of the clinical stance in teacher education. They would work with undergraduates, serve as team leaders in instructional team-teaching situations, be intern consultants, develop elementary school and university curriculum materials, be elementary school principals, and assist with elementary pupils having unusual or difficult learning problems.

The role and training of one such professional instructional leader, the media specialist, is described as a paradigm for the others. The need for instructional teams in elementary schools highlights the potential for such positions. One other staff position on such teams, the Associate Teacher, is delineated and a training program compatible with that herein described is outlined.

Program Evaluation and Development

A viable teacher education program requires a carefully designed, extensive, and workable evaluation system which in turn supports program development. Cognitive, affective, and psychomotor domains must be included in such assessments.

Each modular experience can, potentially, be tested for its contribution to a teacher's development, and test results can be compared with those of alternative experiences. The sequence of modular experiences can be assessed for continuity. Student assessment during the process, information retrieval, built-in check points, professor evaluation, and student performance during internship are some avenues for testing modules. These same procedures are useful in examining the effectiveness module clusters in the total program.

The teacher education program model is designed for constant evaluation and feedback into the program. With a clinic-school network to serve as a laboratory in many settings (rural, suburban, and inner-city), different school plants, cycles including teaching, working with interns and teachers, and program development and research. Some experienced teachers from clinic-schools return to college to work with undergraduates. Some of these teachers would contribute through program development, refining teacher behavior analyses, simulation, and micro-teaching while other teachers would focus primarily on educational research. Upper classmen work with students in the Career Decision Seminar. Through designed experiences with educators at other points in their development, trainees move from student-oriented to profession-oriented behavior.

Such regenerating through recycling is integral to the clinical approach emphasized in this model. Not only is the program designed to develop a clinical behavior style in graduates, it also utilizes a clinical approach in its own instruction of students and provides for continued renewal through analysis of the program itself.

VI. Management

An extensive and flexible management system is necessary to support a complex enterprise such as that described above. Five subsystems are included in the organizational plan: Program Development, Clinical Experiences, Evaluation, Information Retrieval, and Management Planning. The management component is designed to employ the same decision-making techniques advocated for teachers. The clinical behavior style permeates every phase of the program.

The Management Subsystem assists the other subsystems, the Planning Board, and the Project Advisory Council in the areas of systems planning, systems development, and systems analysis.

The Program Development Subsystem is responsible for developing and utimately delivering the non-clinical experiences of students. Program development is accomplished by several means: revision of current modular experiences, input of new ideas or modes of inquiry from scholars in various content areas, the addition of new program tracts, and revision in the clustering and sequencing of instructional modules.

The Evaluation Subsystem assesses the viability of the program and its various components. It consults with program development personnel in precisely stating objectives; it mobilizes the instruments and analytical techniques of the behavioral sciences to observe, measure, and assess the overt actions of individuals and groups; and it suggests research designs to study program effectiveness.

The information retrieval subsystem supporting this program model provides, among its many services, data on student progress and personal characteristics, relevant factors in clinic-school settings, experience modules within the program, research data, and management data.

The computer's potentialities as a massive and highly accurate filing system commend its use in the project. The procedures of defining the curriculum in the form of experience modules particularly, require the the sorting, correlating, purging, and replacing of many hundreds of pieces of paper. In addition, helping students keep track of their progress through the various optional and structured paths that this curriculum offers demands the rapid handling of many thousands of bits of data.

The approach to information retrieval set forth in this program model is a modification of the BIRS (Basic Indexing and Retrieval System) programs, was a system that was developed by a team of scientists at Michigan State University.

The use, however, of BIRS PROGRAMS does not make an implementing institution dependent on computer services at Michigan State University. In fact, the implementing institution may want to provide its own computer programs for information retrieval (if they already have such resources), in which case the data cards which now contain the project's file of modules can be easily replicated for transfer to their own system.